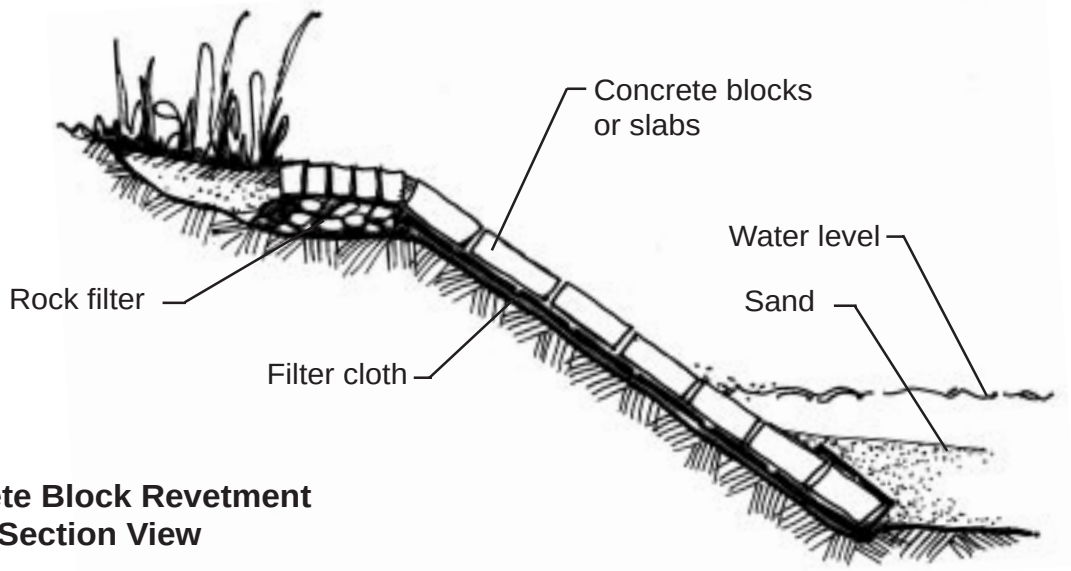
PRIMARY USE: Erosion control.
ADDITIONAL USES:

CONCRETE BLOCK REVETMENT

What is it? A revetment is a facing placed on a bank or bluff to protect a slope, embankment, or shore structure against erosion by wave action or currents.

Purpose

To prevent erosion of banks.



Concrete Block Revetment
Section View

Limitations

Special concrete mixes must be used since standard concrete is too weak and will deteriorate until it crumbles under wave attack. Wave-carried ice, cobblestones, or other debris damage concrete blocks, even those formed with special mixes. Concrete blocks should not generally be used in areas where such damage is likely to occur.

Materials

Concrete blocks or slabs of many shapes have proved effective in revetments. Large blocks and interlocking designs are the most successful.

Installation

Waves break on revetments as they would on an unprotected bank or bluff, and water runs up the slope. Important design considerations include providing appropriate height, width, and toe protection. Revetments should be high enough to prevent overtopping by high waves. To prevent flank erosion, the sides should be protected by tiebacks or returns. Scour at the toe can be prevented by a rock apron. Revetment design should also allow for relief of groundwater pressure in the protected bank. Filters of cloth or small stones relieve water pressure in porous revetments, keeping drainage paths open and preventing settling. Solid revetments can be drained by evenly spaced "weep holes" along the bottom. This drainage channels the groundwater along noneroding paths and prevents it from seeking its own way along the softer material of the slope. Revetments are stable if they are built on relatively gentle slopes, with two to four feet of run for every foot of rise (0.6-1.2 m for every 0.3 m rise). Revetments should not be built on slopes with less than a foot and a half of run per foot of rise (0.5 m run for every 0.3 m rise). The slope on which a revetment is to be built may require grading or smoothing to prepare an adequate foundation for construction.

Source: Low Cost Shore Protection, Army Corps of Engineers.